UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

COALITION FOR INDEPENDENT TECHNOLOGY RESEARCH,

Plaintiff,

v.

GREG ABBOTT, in his official capacity as Governor of the State of Texas,

STEVEN C. MCCRAW, in his official capacity as Director and Colonel of the Texas Department of Public Safety,

AMANDA CRAWFORD, in her official capacity as Executive Director of the Texas Department of Information Resources and Chief Information Officer of Texas,

DALE RICHARDSON, in his official capacity as Chief Operations Officer of the Texas Department of Information Resources,

ASHOK MAGO, LAURA WRIGHT, LINDY RYDMAN, CARLOS MUNGUIA, MARY DENNY, MILTON B. LEE, MELISA DENIS, DANIEL FEEHAN, and JOHN SCOTT JR., in their official capacities as members of the Board of Regents of the University of North Texas System, and

MICHAEL WILLIAMS, in his official capacity as Chancellor of the University of North Texas System,

Defendants.

Civil Action No. 1:23-cv-783

DECLARATION OF PROFESSOR BRUCE SCHNEIER

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I, Bruce Schneier, declare:

1. The plaintiff in this lawsuit, the Coalition for Independent Technology Research ("CITR"), has challenged the application of Texas's TikTok ban to public university faculty. Through its attorneys, CITR has asked me to assess the arguments that Texas has made in defense of the ban. I am submitting this declaration for this purpose. My declaration is based on expertise I have developed over the course of many years of academic study and professional practice related to computer security, national security, and public policy. I have personal knowledge of the facts set forth herein and, if called to testify as a witness, I could do so competently under oath.

2. Below, I explain why Texas's ban on TikTok is ineffective, counterproductive, and unnecessary in relation to Texas's asserted regulatory concerns—not just its general concerns pertaining to data privacy, the spread of disinformation, and network and device security, but also its more specific concerns regarding TikTok's connection with China.

Career and Background

3. I am a cryptographer, security technologist, and writer. I currently serve as an Adjunct Lecturer in Public Policy at the Harvard Kennedy School of Government, where I teach "Cybersecurity, Technology, Policy, and Law," and "Future Issues in Cyber-Security Policy." I also serve as a fellow at the Berkman Klein Center for Internet and Society at Harvard University, a board member of the Electronic Frontier Foundation and AccessNow, and an advisory board member of the Electronic Privacy Information Center and VerifiedVoting.org. I am also the Chief of Security Architecture at Inrupt, Inc., which provides data infrastructure solutions.

4. My work and research focus on the intersection of security, technology, and people. I published my first book about cryptography, *Applied Cryptography*, in 1994. *Applied Cryptography* is now widely used as an academic textbook on the theory and practice of cryptography. I have since written more than a dozen books on these issues, including *Secrets and Lies: Digital Security in a Networked World* (2000), *Beyond Fear: Thinking Sensibly About Security in an Uncertain World* (2003), *Liars and Outliers: Enabling the Trust that Society Needs to Thrive* (2012); and *Data and Goliath: The Hidden Battles to Collect Your Data and Control Your World* (2015). In 2023, I published *A Hacker's Mind: How the Powerful Bend Society's Rules, and How to Bend them Back*. *A Hacker's Mind* discusses the ways that our political, economic, social, legal, and even cognitive systems can be disrupted and manipulated, for better and for worse.

5. I have also written hundreds of articles, essays, and academic papers. I have published a newsletter called Crypto-Gram and a blog called Schneier on Security since 1998 and 2004, respectively. Together, these two publications are read by more than 250,000 people. I have also been involved in the creation of numerous cryptographic algorithms—computer functions designed to encrypt data. I have testified before Congress several times and have served on several national and international committees. I recently co-authored a report with the Hoover Institution at Stanford University and the American University Washington College of Law titled *Chinese Technology Platforms Operating in the United States*, which proposed a comprehensive framework for understanding and assessing the risks posed by Chinese-owned technology platforms in the United States.[1]

[1] *See* Gary Corn, Jennifer Daskal, Jack Goldsmith, Chris Inglis, Paul Rosenzweig, Samm Sacks, Bruce Schneier, Alex Stamos & Vincent Stewart, *Chinese Technology Platforms Operating in the United States*, Hoover

6. I received a Bachelor of Science from the University of Rochester in 1984 and a Master of Science in computer science from American University in 1986. In 2011, I received an honorary Ph.D. from the University of Westminster.

7. A copy of my curriculum vitae is attached as Exhibit 1 to this declaration. It sets out my research, publications, and educational and professional experience in further detail.

Texas's TikTok Ban

8. TikTok is a social media platform that allows users to create, edit, share, and interact with short videos. TikTok is accessible through a web browser, a desktop application, or a mobile phone application. Its mobile application is one of the most popular apps ever made. The platform has more than one billion monthly active users, including some 150 million in the United States.

9. The TikTok app has an essentially global userbase, which skews young. In 2021, 42% of TikTok's users were between the ages of 18 and 24, although the average age of its user base has grown as the platform has expanded.[2] About 70% of American young people use it.[3]

10. Speech on TikTok covers everything from political advocacy and news to entertainment and educational content. A significant portion of the content viewed on TikTok comes from American users. While users in the United States account for 10% of TikTok's global audience, content created by U.S. users accounts for 25% of views around the world.[4]

Inst., https://www.hoover.org/sites/default/files/research/docs/chinesetechplatforms_webreadypdf.pdf (Feb. 11, 2023) ("Hoover Institution Report").

[2] Grace Mayer, *The Average TikTok User in the US is an Adult 'Well Past College Age,' CEO Says*, Bus. Insider (Mar. 22, 2023), https://www.businessinsider.com/tiktok-user-average-age-united-states-adult-past-college-ceo-2023-3; *see also* Shou Chew, *Testimony Before the U.S. House Committee on Energy and Commerce, Written Statement of Testimony* 1 (Mar. 23, 2023) ("Chew Testimony").

[3] Felix Richter, *7 in 10 American Teens Use TikTok*, Statista (Nov. 6, 2020), https://www.statista.com/chart/22446/most-used-social-media-platforms-by-us-teens.

[4] Chew Testimony, *supra* note 2, at 1.

11. TikTok is operated by TikTok Inc., a U.S. company that is incorporated in California and has headquarters in California and Singapore. TikTok Inc. is owned by ByteDance Ltd, which is incorporated in the Cayman Islands and based in China.

12. On December 7, 2022, Texas Governor Greg Abbott issued a directive requiring all state agencies to ban the use or downloading of TikTok on state-owned devices. The directive cited concerns about data collection, disinformation, and the fear that "the Chinese government . . . wields TikTok to attack our way of life."[5] Texas's Department of Public Safety and Department of Information Resources subsequently developed a Model Security Plan that recited the same concerns.[6] More recently, the Texas legislature passed a law[7] that codified some aspects of the TikTok ban, again citing concerns related to TikTok's ties to China.[8]

13. Texas's TikTok ban extends to faculty at public universities. It prohibits faculty from installing TikTok on university-issued devices and from using TikTok on university networks. It even prohibits faculty from installing or using TikTok on any personal devices that are also used to conduct university business—for example, accessing university email. The TikTok ban is categorical and applies to all public university faculty, including faculty whose research and teaching relates to the platform.

14. Texas's TikTok ban is similar in some ways to bans on the use of TikTok on government-issued devices ordered by the White House, the European Commission, Canada, and the United Kingdom. However, these other bans appear to cover a narrower set of employees or contain important exceptions that are missing from the Texas ban. For instance, the U.K. ban

[5] Letter from Governor Greg Abbott, to State Agency Heads (Dec. 7, 2022).

[6] *Model Security Plan for Prohibited Technologies*, Tex. Dep't of Pub. Safety & Tex. Dep't of Info. Resources, at 3 (Jan. 26, 2023).

[7] S.B. 1893, 2023 Leg. Sess., 88th Sess. (Tex. 2023).

[8] *See* Bill Analysis, House Committee Report, S.B. 1893 (2023).

does not apply to government employees' personal devices and indicates that exemptions may be granted, for example, "for the purposes of work on online harms."[9]

15. Texas has not explained its justification for the TikTok ban with any specificity. My understanding from the public record is that the TikTok ban is based on general concerns about data collection, the spread of disinformation, and (possibly) network security, as well as specific concerns relating to TikTok's connections to China. As I explain below, however, the ban does not actually address these concerns, and in some respects the ban is not just ineffective but counterproductive. The ban is also unnecessary, because Texas could address its stated concerns more effectively without requiring a ban on the use of TikTok by public university faculty.

The TikTok Ban is Ineffective

16. The TikTok ban does not meaningfully advance the governmental interests that Texas has cited. Intrusive data collection practices, the spread of disinformation, and risks to network and device security are serious concerns, but they are not unique to TikTok. Rather, they are problems that are present on all popular online platforms, including American-owned apps and services. Banning the use of TikTok by public university faculty will not effectively address these issues. Nor will the ban effectively address Texas's specific concerns around TikTok's connections to China. Even assuming that there is a significant likelihood that the Chinese government will acquire access to TikTok's American-user data and that Texas's TikTok ban will cut off that direct access (both questionable premises), the Chinese government can acquire Americans' data from commercial data brokers, advertising aggregators, and other apps and

[9] Cabinet Office and Oliver Dowden, *TikTok banned on UK government devices as part of wider app review*, GOV.UK (Mar. 16, 2023), https://www.gov.uk/government/news/tiktok-banned-on-uk-government-devices-as-part-of-wider-app-review.

devices that send or sell data directly to China. Banning TikTok does not meaningfully limit the Chinese government's ability to acquire data about Texans, including about state employees.

A. Texas's Concerns Relating to Data Collection

17. Texas's TikTok ban does not effectively protect the data privacy of Texans because it does nothing to address the root of the issue: the intrusive data collection practices themselves.

18. To be sure, TikTok collects sensitive information about its users, including its American users. Government officials are right to be concerned about the ability of private companies—including TikTok—to collect, aggregate, and use sensitive user data. But TikTok is not distinctive in its data-collection practices. Indeed, other major online platforms collect as much data from their users as TikTok does from its users. Take, for instance, Google, which operates, among other things, the Google search engine, the video sharing platform YouTube, the e-mail service Gmail, the mobile payment service Google Pay, and the web browser Chrome. Across its many apps and services, Google collects a vast amount of sensitive, personal information from and about its users. This includes the terms users search for, the videos they watch, the people they communicate with, the payments they make, and the websites they browse.[10] Google even records users' voice and audio information, as well as their activity on third-party sites.[11] The popular social media platform Facebook likewise collects an enormous amount of information from its users, including their network of friends and connections, the location of their devices, the frequency and duration of their activities on the platform, and their activities off-platform.[12] Apps like the French-owned BeReal, Israeli-owned Viber, and South-

[10] *See Privacy Policy*, Google (Jul. 1, 2023), https://policies.google.com/privacy.
[11] *Id.*
[12] *See Privacy Policy*, Meta (Jun. 15, 2023), https://www.facebook.com/privacy/policy.

Korean-owned Line collect similar information. So too do seemingly innocuous apps that have no need for this kind of data. Even an app that operates only as a flashlight may be tracking and selling its users' locations.

19. Texas's ban is also ineffective because it covers only state employees, not all Texans. To be clear, I am not suggesting that a broader ban would be appropriate or justified. In most ways, a broader ban would be even more problematic than a narrower one. However, Texas's ban could not possibly protect the data privacy of Texans generally. Even as to Texas state employees specifically, banning TikTok from state employees' devices does not prevent TikTok from collecting their sensitive personal data anyway. Like many other companies, TikTok uses trackers called pixels that gather data about people as they travel across the web, even if they do not use the TikTok app or have a TikTok account. Advertisers can embed TikTok's tracking pixels into their websites. TikTok then uses the information gathered from pixels to help those advertisers target ads to potential consumers and measure how well ads are doing. When someone visits a website with a TikTok tracking pixel, the pixel sends information to TikTok, like that person's IP address, the page they're visiting, and their activity on the website. When it can, the pixel also collects the person's email address, phone number, and IP address and tries to use that information to connect the browsing session to an existing TikTok user. TikTok collects this information even from people who have never created a TikTok account.

20. So long as Texas state employees continue to visit websites with TikTok tracking pixels, TikTok can still collect sensitive personal information about those employees. That is true even if those employees no longer use the TikTok app or, indeed, never had a TikTok account in the first place. Moreover, the Texas ban does not stop TikTok from gathering data from state

employees through the TikTok app or website itself, as the ban does not broadly preclude employees from downloading and using TikTok on personal devices—so long as those devices are not used to access state accounts. Nor does the ban prevent TikTok from collecting data about state employees from their family members, friends, and professional connections.

21. All of this is to say that Texas's TikTok ban does not protect the data privacy of Texans because it does not restrict TikTok, or any other company, from collecting sensitive information. Addressing data privacy concerns in an effective way requires policy responses aimed at data collection, not bans on specific apps. Glenn S. Gerstell, a former general counsel to the National Security Agency, recently observed that banning TikTok would only "sidestep a broader problem—our nation's overall failure to address concerns over the huge amount of personal data collected in our digital lives."[13] I agree with Mr. Gerstell. I and a number of co-authors said as much in a report recently published by the Hoover Institution and the American University Washington School of Law. In that report, we called for "strong privacy legislation" that provides "better controls on data collection, sale, and aggregation by private companies," including "limitations on data collection by private companies."[14]

22. My understanding is that Texas has distinct concerns about TikTok relating to the collection of Texans' data by a company connected to China. But Texas's TikTok ban is ineffective at addressing these concerns as well.

23. There is no doubt, of course, that the Chinese government is interested in data about Americans. But the suggestion that China has unfettered access to TikTok's data is at least questionable. And although Texas has said that the Chinese government could use China's

[13] Glenn S. Gerstell, *The Problem With Taking TikTok Away From Americans*, N.Y. Times (Feb. 1, 2023), https://www.nytimes.com/2023/02/01/opinion/tiktok-ban-china.html.

[14] Hoover Institution Report, *supra* note 1, at 10.

National Intelligence Law to compel TikTok to share data about American users, there is no evidence that the Chinese government has ever done this in the past. I do not want to suggest that China's National Intelligence Law poses no threat to data privacy. It does. However, the idea that providing any data to TikTok is synonymous with providing that data to the Chinese government is too simplistic.

24. The more important point, however, is that the Chinese government does not need TikTok to access large volumes of sensitive data about Americans. As I and my co-authors wrote in the Hoover Institution Report, when assessing the "threat posed by access to data from communications platforms and apps, it is also critical to assess whether and to what extent the data provides additional value beyond what is available to China via scraping of publicly available data sources, purchasing from data brokers, illegal theft, or other alternative mechanisms of acquiring the data."[15] Even if the Chinese government did have access to TikTok's data, it would likely provide little, if any, additional value beyond what the Chinese government could acquire through commercially available data sold by data brokers.

25. Commercial data brokers collect, aggregate, and sell a vast amount of sensitive personal information. These companies assemble detailed dossiers of individual users by compiling trails of data collected by everything from smartphone apps and social media websites to automobiles and "smart" devices like fitness trackers, speakers, doorbells, fridges, TVs, and even scales. Researchers at Northeastern University ran 34,586 tests on 81 different smart devices, revealing that 72 of the 81 devices sent information to at least one third-party.[16] More

[15] *Id.* at 7.

[16] *See* Jingjing Ren et al., *Information Exposure From Consumer IoT Devices: A Multidimensional, Network-Informed Measurement Approach*, 2019 Proc. of the Internet Measurement Conf. 267, 267 (2019).

than half of the overall destinations for data transmitted by U.S.-made devices were third parties, and 56% of U.S. devices contacted destinations outside their region, including China.[17]

26. Data brokers typically have access to basic information like a person's demographic details and IP address history, but they often also have access to additional information that is more sensitive, including records of the person's specific locations, biometric identifiers, sleep patterns, browsing histories, political preferences, social networks, personal interests, and purchases. The location information in many brokers' data sets is typically accurate to within a few yards, and in some cases it is updated more than 14,000 times per day.[18] Even data that is supposedly anonymized can be attributed to specific individuals, and data brokers can combine data to reverse engineer identities or deanonymize various kinds of information. A recent report prepared by the Office of the Director of National Intelligence ("ODNI") on data brokers and commercially available information concluded that such information "can provide significant intelligence value," both to the U.S. intelligence community and its adversaries and both on its own and in combination with other information collected using classified sources and methods.[19] The report acknowledged that the U.S. government is capable of identifying and deanonymizing individuals' data using these commercially available datasets.[20]

27. Government employees have their data harvested and aggregated by data brokers, just like everyone else. Companies like Nielsen and LexisNexis, U.S.-based data brokers,

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[17] *Id.* at 267, 272.

[18] Jennifer Valentino-DeVries et al., *Your Apps Know Where You Were Last Night, and They're Not Keeping It Secret*, N.Y. Times (Dec. 10, 2018), https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html.

[19] Office of the Dir. of Nat'l Intel. Senior Advisory Grp., Panel on Commercially Available Info., *Report to the Director of National Intelligence* 7–14 (Jan. 27, 2022), https://www.dni.gov/files/ODNI/documents/assessments/ODNI-Declassified-Report-on-CAI-January2022.pdf ("ODNI Report").

[20] *Id.* at 11.

explicitly advertise their ability to identify active military personnel.[21] Another broker, Acxiom, touts that its datasets contain information on 9.8 million teachers and college professors, 21.3 million government employees, and 45.5 million military personnel and veterans.[22]

28. There is virtually no regulation of the data broker industry in the United States, making it easy and profitable for brokers to sell private information to anyone looking to buy—including foreign governments. Data brokers seldom ask questions about who is purchasing the data they aggregate. It would be trivial for the Chinese government to buy enormously detailed datasets about Americans, either directly or through a third party to disguise themselves. As the ODNI report acknowledged, the U.S. government itself already acquires a large amount of commercially available information from data brokers.[23] The information is also readily available to foreign governments and their intelligence agencies.[24] Indeed, the ODNI report explained that the U.S. intelligence community was "strongly of the view that it will be at a significant disadvantage vis a vis foreign adversaries and competitors if it does not enjoy certain access to [commercially available information]."[25]

29. The Chinese government also appears to scrape data from foreign social media websites—including American companies like Facebook and Twitter—to use for intelligence purposes. In 2021, the Washington Post reviewed bidding documents and contracts for more than 300 Chinese government projects since 2020 and found "orders for software designed to collect

[21] Justin Sherman, *Data Brokers and Sensitive Data on U.S. Individuals*, Duke Sanford Cyber Pol'y Program 3 (2021), https://techpolicy.sanford.duke.edu/wp-content/uploads/sites/4/2021/08/Data-Brokers-and-Sensitive-Data-on-US-Individuals-Sherman-2021.pdf.

[22] *Id.* at 4.

[23] ODNI Report, *supra* note 19, at 7–8.

[24] *Id.* at 9, 13, 17.

[25] *Id.* at 9.

data on foreign targets from sources such as Twitter, Facebook and other Western social media."[26]

30. Accordingly, the Chinese government can collect immense volumes of data about Americans without ever accessing the data collected by TikTok. Indeed, it can collect this data through data brokers based in China. Adtiger, for instance, is the operator of one of the largest Chinese advertising marketplaces. Adtiger partners with American social media companies as well as other Chinese companies that collect and aggregate data from American apps and platforms. Altogether, Adtiger has access to an enormous swath of sensitive user information from Facebook, Snap, Gmail, YouTube, Twitter, and likely every other popular digital platform. This data is already stored on China-based servers, and likely several times over.

b. Texas's Concerns Relating to Disinformation

31. Banning TikTok is not likely to meaningfully address the spread of disinformation online.

32. As an initial matter, it is important to recognize that all social media platforms, including American ones, are susceptible to being used to disseminate disinformation. One recent study from researchers at New York University and the Université Grenoble Alpes on user behavior on Facebook around the 2020 election found that sources known for publishing misinformation received more than six times as many likes, shares, and interactions on Facebook as trustworthy sources did.[27]

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[26] Cate Cadell, *China harvests masses of data on Western targets, documents show*, Wash. Post. (Dec. 31, 2021), https://www.washingtonpost.com/national-security/china-harvests-masses-of-data-on-western-targets-documents-show/2021/12/31/3981ce9c-538e-11ec-8927-c396fa861a71_story.html.

[27] Laura Edelson et al., *Understanding engagement with U.S. (mis)information news sources on Facebook*, 2021 Proc. of the 21st ACM Internet Measurement Conf. 444 (2021), https://dl.acm.org/doi/pdf/10.1145/3487552.3487859.

33. Also, all social media platforms, including American ones, can be exploited by foreign powers interested in influencing Americans. Multiple foreign governments have engaged in disinformation campaigns using American-based platforms. For instance, the Justice Department has indicted Iranian nationals for engaging in a coordinated conspiracy through Facebook, YouTube, and Twitter to influence American voters in connection with the 2020 election.[28] Similarly, Special Counsel Robert Mueller's report on Russia's interference with the 2016 election detailed Russian operatives' attempts to influence voters through accounts and pages on Facebook, Instagram, and Twitter that falsely claimed to be controlled by U.S. activists.[29] Indeed, Facebook's capacity, in particular, to spread foreign disinformation has been well-documented.[30] More recently, there are indications that Russian actors have used Twitter and Facebook to spread misinformation about the war in Ukraine.[31] What these examples make clear is that foreign governments already exploit American-owned platforms to spread disinformation. They do not need to own or be closely associated with a platform to do so.

34. Texas's TikTok ban will not meaningfully affect the ability of the Chinese government, in particular, to disseminate disinformation and propaganda. It can easily disseminate propaganda on other platforms, including American ones. Chinese state media organs like the People's Daily newspaper are available on Google and have prominent accounts on both Facebook (85 million followers) and Twitter (6.6 million followers). The Chinese government also uses social media to engage in mis- and disinformation in more subtle ways. In

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[28] *See* Sealed Indictment, *United States v. Seyed Mohammad Hosein Mousa Kazemi*, No. 21-cr-644 (S.D.N.Y. 2021).

[29] *See* Special Counsel Robert S. Mueller, III, *U.S. Dep't of Justice, Report on the Investigation into Russian Interference in the 2016 Presidential Election* (2019).

[30] *See, e.g.*, Cecilia Kang & Sheera Frenkel, An Ugly Truth: Inside Facebook's Battle for Domination (2021).

[31] *See* Peter Suciu, *Russian 'Sock Puppets' Spreading Misinformation On Social Media About Ukraine*, Forbes (Mar. 10, 2022), https://www.forbes.com/sites/petersuciu/2022/03/10/russian-sock-puppets-spreading-misinformation-on-social-media-about-ukraine/?sh=7f660de15679.

2020, Twitter suspended more than 23,000 accounts that it suspected of using propaganda to undermine the Hong Kong protests and counter criticism of Beijing's coronavirus response at the behest of the China's Communist Party.[32] Beijing apparently works closely with foreign influencers living in China to create and distribute pro-China videos that have hundreds of millions of views on Facebook, Twitter, and YouTube.[33]

c. Texas's Concerns Relating to Security

35. Texas's TikTok ban will not meaningfully protect Texans from malware or other cybersecurity-related vulnerabilities.

36. It is certainly possible that TikTok could be used as a means of delivering malware to Americans, but this risk is not unique to TikTok. Other apps and devices, including American ones, can be used as vectors for malware or used to gain unauthorized access to networks and devices. University researchers have discovered security vulnerabilities in the encryption for the video-conferencing platform Zoom[34] and the audio-chat app Clubhouse.[35] Vulnerabilities have also been found in intentional design features built into the messaging service WhatsApp,[36] an app that touts its commitment to privacy and security. Russian hackers have attempted to use social media platforms like Twitter to gain access to computers belonging

[32] Ellen Nakashima, Elizabeth Dwoskin, and Anna Fifield, *Twitter removes more than 23,000 accounts it says are linked to China's Communist Party*, Wash. Post (Jun. 11, 2020), https://www.washingtonpost.com/world/asia_pacific/twitter-removes-almost-25000-accounts-it-says-are-linked-to-chinas-communist-party/2020/06/11/8c9ec770-aa38-11ea-a43b-be9f6494a87d_story.html?itid=lk_inline_manual_83.

[33] *See* Paul Mozur, *How Beijing Influences the Influencers*, N.Y. Times (Dec. 13, 2021), https://www.nytimes.com/interactive/2021/12/13/technology/china-propaganda-youtube-influencers.html.

[34] *See* Bill Marczak and John Scott-Railton, *Move Fast and Roll Your Own Crypto*, Citizen Lab (Apr. 3, 2020), https://tspace.library.utoronto.ca/bitstream/1807/104313/1/Report%23126--zoom.pdf.

[35] *See* Jack Cable et al., *Clubhouse in China: Is the data safe?*, Stan. Internet Observatory (Feb. 12, 2021), https://cyber.fsi.stanford.edu/io/news/clubhouse-china.

[36] *WhatsApp design feature means some encrypted messages could be read by third party*, The Guardian (Jan. 13, 2017), https://www.theguardian.com/technology/2017/jan/13/whatsapp-design-feature-encrypted-messages.

to Pentagon officials. Researchers have even demonstrated the ability to compromise Internet-enabled cars, home thermostats, and implanted medical devices.

37. As I and my co-authors have explained in our Hoover Institution Report, "anyone or any device or system—irrespective of country of origin— could become a threat vector," and "[e]very piece of software or hardware has vulnerabilities that can be exploited."[37] Perhaps the clearest illustration is the 2019 attack on SolarWinds, a Texas-based company that provides network management software to many federal government entities. After Russian hackers injected "trojanized" code into one of SolarWinds' network monitoring products, SolarWinds pushed that code out to its government customers through a software update. This provided the perpetrators with a "back door" into the networks of over 14,000 SolarWinds clients, including the National Institutes of Health, the National Telecommunication and Information Administration, parts of the Pentagon, and even the Cybersecurity and Infrastructure Security Agency. Banning TikTok does not effectively address these concerns with device and network security.

38. Texas's TikTok ban also does not decrease the risk of security breaches originating from the Chinese government specifically. While TikTok, like any other application, could be used to introduce malware, any effort to infect the devices of 150 million Americans would likely be detected in short order. This kind of cyberattack—particularly if it were directed by the Chinese government—would also present such a catastrophic foreign relations problem that it would be extremely unlikely unless the countries were on the brink of war.

[37] Hoover Institution Report, *supra* note 1, at 4.

The TikTok Ban is Counterproductive

39. In at least one respect, Texas's TikTok ban is not just ineffective in relation to the concerns Texas has cited, but counterproductive. This is because the ban impedes important research relating to TikTok, including work relating to data privacy, the spread of disinformation, and security.

40. Much of what we know about these risks, in fact, is the result of scholarly research. For instance, two years ago researchers at the University of Toronto's Citizen Lab conducted a comprehensive security and privacy analysis of the platform.[38] By operating the TikTok app and then examining the app's network traffic, researchers were able to learn about the precise types of data the app collected, when that data was transmitted, and its destination. The researchers also evaluated and tested the encryption and security protocols that TikTok used to protect this network traffic. Understanding what sensitive information TikTok collects, how TikTok uses and secures this information, and who TikTok shares this information with is crucial to assessing the impact of those practices on user privacy and security. Gaining a complete understanding of these risks requires additional research into TikTok's data and security practices, research that Texas's ban hinders.

41. Much of what we know about disinformation on TikTok also comes from scholarly research. For example, research from the University of Arizona College of Medicine helped to uncover the scope and extent of medical misinformation on TikTok, finding that nearly 40 percent of TikTok posts about liver disease contained some kind of misinformation.[39]

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[38] *See* Pellaeon Lin, *TikTok vs Douyin: A Security and Privacy Analysis*, Citizen Lab (Mar. 22, 2021), https://tspace.library.utoronto.ca/bitstream/1807/123974/1/Report%23137--TikTok.pdf.

[39] *See TikTok Hosts the Latest Dance Moves and Bad Information on Liver Disease*, Digestive Disease Week 2023 (May 9, 2023), https://ddw.org/2023/06/01/tiktok-hosts-the-latest-dance-moves-and-bad-information-on-liver-disease.

Banning TikTok suppresses independent research into mis- and disinformation on the service. By preventing researchers from accessing TikTok, including to evaluate the platform's content moderation practices and recommendation algorithm, Texas's ban will make it more difficult to understand whether and how TikTok may be responsible for spreading mis- and disinformation on its platform.

42. Research on TikTok is also necessary to evaluate the efficacy of methods used to combat mis- and disinformation. The Harvard Kennedy School recently published a study by researchers from the University of Regina assessing the effectiveness of "debunking" videos in correcting misinformation claims.[40] Researchers showed participants a combination of TikTok videos with misinformation and TikTok videos that sought to correct that misinformation and evaluated the impact of the correction videos on participants' belief in the misinformation claim. Texas's TikTok ban impedes additional work of this kind, which can help identify strategies to address concerns with the spread of mis- and disinformation online.

The TikTok Ban is Unnecessary

43. As explained above, Texas's TikTok ban is ineffective and even counterproductive in relation to the concerns that Texas has cited to defend the ban. It is also unnecessary. Texas could address its concerns about data collection, the spread of disinformation, and security without broadly banning public university faculty from accessing TikTok.

44. As I have explained already, there are real and serious problems that arise from the ability of digital platforms to collect sensitive information about Americans on a massive

[40] *See* Puneet Bhargava et al., *How effective are TikTok misinformation debunking videos?*, 4 Harv. Kennedy Sch. Misinformation Rev. (Mar. 29, 2023), https://misinforeview.hks.harvard.edu/wp-content/uploads/2023/03/bhargava_tiktok_debunking_videos_20230329.pdf.

scale. But Texas can address or mitigate these concerns without banning TikTok. For example, as I and my co-authors explained in our Hoover Institution Report, Texas could enact "strong privacy legislation" that provides "better controls on data collection, sale, and aggregation by private companies."[41] This includes "limitations on data collection by private companies as well as limits on the data brokerage industry, so as to restrict its buying and selling of information."[42] Privacy legislation would not only help secure data privacy, it would also "help ensure better data security" and "limit the amount and type of data that foreign actors can exploit and the potential for malicious actors (including foreign adversaries such as China) to engage in such activities as espionage and disinformation campaigns."[43]

45. There is broad consensus among technology policy experts and the general public about the necessity of comprehensive data privacy regulation. Glenn Gerstell, the former general counsel to the National Security Agency, has explained that "[t]he optimal way forward would be for Congress to pass a law governing the collection and misuse of online personal and commercial data that would apply not only to current apps such as TikTok but also to future digital apps (foreign owned or not) posing security or privacy concerns."[44] As he has written, "[i]f we had comprehensive laws that limit the collection and misuse (including the potential export to China) of Americans' online personal data, then fears about the Chinese authorities using the app for surveillance and data collection would be greatly reduced."[45] Moreover, "[t]he freewheeling data broker business would also be restricted, so all that data would no longer be

[41] Hoover Institution Report, *supra* note 1, at 10.
[42] *Id.*
[43] *Id.*
[44] Gerstell, *supra* note 13.
[45] *Id.*

readily available."[46] I agree with Mr. Gerstell on these points. Privacy regulation—at the federal level, or even the state level—would be an effective way of addressing or significantly mitigating the concerns about data collection, and it would not require a ban on public university professors' access to TikTok. Such regulation would protect Americans in the long term, and not just from the "app of the week."

46. Even if Texas is specifically concerned about the potential for TikTok to store Americans' user data in China, narrower alternatives than an outright ban would address this issue. Texas could, for instance, require TikTok and other platforms with connections to China to store data belonging to American users in the United States and to manage those data operations from the United States. TikTok has begun work on a data localization initiative called Project Texas. Under Project Texas, TikTok has created a new subsidiary entity called TikTok U.S. Data Security to manage all business functions that require access to U.S. user data, as well as the systems that deliver content to U.S. users. TikTok reports that, as of June 2022, all U.S. user traffic is now routed to servers in the United States, and all access to that environment is managed by TikTok U.S. Data Security.[47] Rather than ban TikTok, Texas could address its concerns relating to the storage of Americans' user data in China by mandating and overseeing data localization efforts.

47. Texas can also address or mitigate concerns relating to the spread of disinformation without banning TikTok. For instance, Texas could mandate greater transparency into digital platforms' content moderation practices. It could require TikTok and other platforms to disclose its contacts and connections with foreign governments, including China. Additionally,

[46] *Id.*

[47] *Where does TikTok store U.S. user data?*, TikTok U.S. Data Sec., https://usds.tiktok.com/where-does-tiktok-store-u-s-user-data.

Texas could protect and promote the ability of journalists and researchers to study disinformation on online platforms. It could, for instance, compel TikTok and other platforms to provide researchers access to the platform or to develop application programming interfaces that will allow independent parties to test and audit the platform. These policies would help governments and the public better understand how best to address concerns with the spread of disinformation online.

48. And Texas can address or mitigate concerns related to device and network security without banning TikTok. In particular, concerns relating to the use of TikTok by public university employees who have access to sensitive information or critical infrastructure could be addressed with a much narrower policy than an outright ban. After the federal government learned that Fitbit fitness trackers and other location-tracking devices could be used to monitor personnel at sensitive locations, the Department of Defense addressed this concern by revising its policy to prohibit location tracking functionality, but only "while in locations designated as operational areas."[48] Even then, the policy permitted commanders to authorize the use of these capabilities on government-issued devices "based upon mission necessity."[49] A more limited prohibition on the use of TikTok on devices with especially sensitive information that raises a demonstrable security concern would satisfy Texas's interest more directly than a blanket ban. Thus, even if a ban on TikTok were appropriate, a narrower ban—one that applied only to those state employees with access to sensitive information, for example—would achieve Texas's aims.

49. Public universities could also address security concerns by issuing dedicated devices to faculty engaged in TikTok-related research and by establishing dedicated networks for

[48] *See* Patrick M. Shanahan, Deputy Secretary of Defense, *Use of Geolocation-Capable Devices, Applications, and Services*, Dep't of Def. (Aug. 3, 2018), https://media.defense.gov/2018/Aug/06/2001951064/-1/-1/1/GEOLOCATION-DEVICES-APPLICATIONS-SERVICES.PDF.

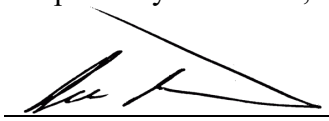
[49] *Id.*

use of TikTok in research and teaching. Whether these measures are necessary is questionable, but they would achieve Texas's stated goals without imposing such a significant cost on academic freedom. Notably, the Cybersecurity and Infrastructure Security Agency has advised network administrators to improve network security by segmenting networks based on role and function and segregating sensitive information.[50] There is no reason why measures like this—which would be trivial for public universities to implement—would not achieve Texas's stated aims here.

50. Additionally, effective audits and reviews could protect Texas against potential cybersecurity vulnerabilities that could result from government employee use of TikTok. In our report with the Hoover Institution, I and my co-authors noted that the United Kingdom has attended to concerns about the security of its 5G telecommunications equipment by establishing a testing and evaluation center that probes for security vulnerabilities and assesses security risk.[51] I also agree with the recommendation of the U.S. Cyberspace Solarium Commission that better product testing in the United States can help ameliorate security risks that arise from the broader digital supply chain.[52] Rather than ban TikTok, Texas could address security concerns by pursuing more comprehensive audits and reviews of TikTok's platform.

51. I declare under penalty of perjury that the foregoing is true and correct.

Respectfully submitted,



Bruce Schneier

August 15, 2023

[50] *See Securing Network Infrastructure Devices*, Cybersecurity & Infrastructure Sec. Agency Blog, https://www.cisa.gov/news-events/news/securing-network-infrastructure-devices.

[51] *See* Hoover Institution Report, *supra* note 1, at 9.

[52] *See* U.S. Cyberspace Solarium Commission, Building a Trusted ICT Supply Chain 12 (Oct. 2020), https://drive.google.com/file/d/1efo96fPx5WkOxTiFFY1r5y3lFqdit00C/view.

EXHIBIT 1

Bruce Schneier

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Background

Bruce Schneier is an internationally renowned security technologist, called a "security guru" by the *Economist*. He is the *New York Times* best-selling author of 14 books—including *Click Here to Kill Everybody*—as well as hundreds of articles, essays, and academic papers. His influential newsletter *Crypto-Gram* and blog *Schneier on Security* are read by over 250,000 people. Schneier is a fellow at the Berkman-Klein Center for Internet and Society at Harvard University; a Lecturer in Public Policy at the Harvard Kennedy School; a board member of the Electronic Frontier Foundation, AccessNow, and the Tor Project; and an advisory board member of EPIC and VerifiedVoting.org. He is the Chief of Security Architecture at Inrupt, Inc.

Professional Experience

2019–present, Chief of Security Architecture, Inrupt, Inc., Boston, MA.

2016–2019, Chief Technology Officer, IBM Resilient, and special advisor to IBM Security, Cambridge, MA.

2014–2016, Chief Technology Officer, Resilient Systems, Inc. (formerly called Co3 Systems, Inc.), Cambridge, MA.

2006–2013, Chief Security Technology Officer, British Telecom, London, UK.

1999–2006, Chief Technology Officer, Counterpane Internet Security, Inc., Cupertino, CA.

1993–1999, President, Counterpane Systems, Oak Park, IL and Minneapolis, MN.

1991–1993, Member of Technical Staff, AT&T Bell Labs., Schaumburg, IL.

1990, Director of Operations, Intelligent Resources Information Systems, Inc., Chicago, IL.

1987–1990, Program Manager, Space and Naval Warfare Systems Command, Arlington, VA.

1984–1987, Electronics Engineer, Naval Electronics Systems Security Engineering Center, Washington, DC.

Academic Experience

2016+, Lecturer in Public Policy, John F. Kennedy School of Government, Harvard University.

2016–2018, Research Fellow in the Science, Technology, and Public Policy program at the Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University.

2013+, Fellow, Berkman Klein Center for Internet and Society, Harvard University.

Board Membership

2017+, Board Member, AccessNow, New York, NY

2013+, Board Member, Electronic Frontier Foundation, San Francisco, CA.

2016–2021, Board Member, Tor Project, Cambridge, MA.

2004–2013, Board Member, Electronic Privacy Information Center, Washington DC.

Education

MS Computer Science, American University, 1986.

BS Physics, University of Rochester, 1984.

Books

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Business Leader in Cybersecurity Award from Boston Global Forum, December 2015.

Named as one of the 20 top security influencers by *eSecurity Planet*, June 2015.

EPIC Lifetime Achievement Award, June 2015.

Named as one of the top ten information security bloggers of 2014 by the ISO 27001 and ISO 22301 blog, December 2014.

Named as an industry pioneer in information security by *SC Magazine*, December 2014.

Berkman Fellow at the Berkman Center for Internet and Society at Harvard University, 2013–2015 academic years.

Named one of the IFSEC 40: The Most Influential People in Security & Fire, January 2013.

Honorary Doctor of Science (ScD) from University of Westminster, London, December 2011.

CSO Compass Award, May 2010.

Named as one of the top 25 most influential people in the security industry by *Security* magazine, December 2008

Inducted into the Infosecurity Europe Hall of Fame, April 2008.

Computer Professionals for Social Responsibility (CPSR) Norbert Wiener Award, January 2008.

Electronic Frontier Foundation (EFF) Pioneer Award, March 2007.

Dr. Dobb's Journal Excellence in Programming Award, April 2006.

Named as one of the top five influential IT security thinkers by *SC* magazine, December 2005.

Infoworld CTO 25 Award, April 2005.

Secrets and Lies won a Productivity Award in the 13th Annual *Software Development Magazine* Product Excellence Awards, 2000.

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